Bank of Canada Banque du Canada

Working Paper 2006-1 / Document de travail 2006-1

# The Institutional and Political Determinants of Fiscal Adjustment

by

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ISSN 1192-5434

Printed in Canada on recycled paper

Bank of Canada Working Paper 2006-1

February 2006

# The Institutional and Political Determinants of Fiscal Adjustment

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The views expressed in this paper are those of the author.
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## Acknowledgements

The author wishes to thank Ryan Felushko for his excellent research assistance as well as Claudia Verno, Eric Santor, Jim Haley, Larry Schembri, Robert Lafrance, Rose Cunningham, Marc-André Gosselin, Michael Francis, and Marianne Johnson for valuable comments and suggestions.

## Abstract

The author empirically assesses the effects of institutional and political factors on the need and willingness of governments to make large fiscal adjustments. In contrast to earlier studies, which consider the role of political economy determinants only during periods of fiscal consolidation, the author expands the field of analysis by examining periods when governments should be making fiscal efforts but fail to do so (or do not try), as well as periods when no adjustment is required. To analyze this greater range of fiscal situations, a multinomial logit framework is applied to a panel of 61 advanced and developing countries, generating a sample size significantly larger than previous work. A key finding is that the political economy factors favouring the maintenance of sensible fiscal policies are different from those that increase the probability of achieving an exceptional adjustment. For instance, the results for developing countries indicate that sound economic institutions help governments avoid dire fiscal situations; however, those countries that actually succeed in making lasting adjustments in the face of a serious need tend to have weak institutions. There is also some evidence that high levels of transfers and subsidies diminish the probability of successful adjustment in developing countries, and that legislative majorities improve the odds. In advanced countries, strong democratic institutions appear to increase the likelihood of avoiding situations of fiscal distress.



*JEL classification: E62, O17, O19*
*Bank classification: Fiscal policy; Econometric and statistical methods; Development economics; International topics*



## Résumé

L'auteur évalue empiriquement l'influence des facteurs institutionnels et politiques sur la nécessité d'effectuer d'importants ajustements budgétaires et sur la volonté des gouvernements d'y procéder. À l'aide d'un logit multinomial appliqué à un panel de 61 pays avancés et en voie de développement, l'auteur propose un cadre méthodologique qui étend l'éventail des situations où des facteurs politico-économiques interviennent dans le processus d'ajustement budgétaire. Plus précisément, il examine le rôle de ces variables, non seulement en période d'ajustement mais aussi, d'une part, lorsque les gouvernements devraient faire un effort budgétaire mais échouent (ou ne font même pas de tentative) et, d'autre part, lorsqu'aucun ajustement n'est requis. Résultat important, les facteurs politico-économiques qui favorisent le maintien de saines politiques budgétaires et ceux qui augmentent les chances d'opérer un ajustement exceptionnel ne sont pas les mêmes. À ce titre, l'expérience des pays en voie de développement montre que les institutions économiques solides permettent aux gouvernements d'éviter les situations budgétaires intenables; pourtant, c'est dans les pays qui tendent à disposer de faibles institutions que l'on parvient à réaliser les changements durables qui s'imposent en situation de crise. Par ailleurs, certains résultats indiquent qu'un haut niveau de transferts et de subventions réduit les chances de succès des ajustements dans les pays en voie de développement, tandis que l'existence d'une majorité parlementaire les accroît. Dans les pays avancés, la présence d'institutions démocratiques fortes semble augmenter la probabilité d'éviter les sérieuses difficultés budgétaires.



*Classification JEL : E62, O17, O19*
*Classification de la Banque : Politique budgétaire; Méthodes économétriques et statistiques; Économie du développement; Questions internationales*

# 1. Introduction

Sustained fiscal consolidation is one of the major challenges confronting both advanced and developing countries. The situation is perhaps most pressing for emerging-market governments, which in aggregate have seen their public debt ratios rise significantly since the Asian crisis.[1] Indeed, in an effort to stave off explosive debt increases, many of the International Monetary Fund's major clients (e.g., Argentina, Turkey, Brazil) have recently pledged to sustain exceptionally high primary surpluses well into the next decade. Of course, the need for sustained fiscal consolidation is not limited to developing countries. Persistent current account deficits and the burden of aging populations are pushing many advanced nations to improve their public finances.

In many of these countries, the main concern is the political and institutional feasibility of sustaining large fiscal adjustments over the longer run. Certainly, political economy factors played an important role during the Latin American debt crisis, the last period of widespread fiscal consolidation among developing countries (Cline 1995; Lavigne 2006). Moreover, the failure of most IMF fiscal programs to meet their targets (IEO 2003) and the significant effect of political ideology on the adjustment strategies of many advanced countries over the past decade (Mulas-Granados 2003) suggest that factors other than standard economic fundamentals continue to play important roles in fiscal consolidation.

From the pioneering research by Roubini and Sachs (1989) to recent applications of survival analysis (Gupta et al. 2003, 2004), much empirical work has been done on the political economy of fiscal adjustment. Most of these studies have restricted themselves to examining relatively short periods of mild fiscal improvement. Despite generating typically small sample sizes, this approach has proven its usefulness, producing a number of valuable policy implications. The empirical framework may need to be expanded, however, to better describe the kinds of large and sustained efforts currently facing many countries.

[1] According to the International Monetary Fund (2003b), public debt for emerging markets as a whole reached over 70 per cent of GDP in 2002, up from about 60 per cent in the mid-1990s.

This paper empirically assesses the effects of a wide range of political and institutional factors on the need and willingness of governments to make lasting fiscal adjustments. Critically, this paper adopts a novel methodology that expands the range of situations when political economy factors come into play. Previous studies focus almost exclusively on periods of increasing primary balances, irrespective of the reasons for the improvement. They do not consider governments that need to make an adjustment but never attempt to do so (or try but fail to produce significant fiscal results); nor do they account for periods when no fiscal effort is required. These omissions are not innocuous, since political economy factors may well be influencing these various fiscal circumstances. For instance, just as political pressure or institutional constraints can affect the likelihood of successfully implementing a public austerity program, they might also be critical in determining whether a country falls into a situation of fiscal distress in the first place. This paper corrects these shortcomings by estimating how political economy conditions differ between three states: (i) when governments successfully make large fiscal adjustments, (ii) when they fail to do so in spite of an obvious need, and (iii) when they face no pressing need to adjust. The new approach tests the basic hypothesis that political and institutional factors play significant roles in determining which of these three fiscal states a country may find itself in at any given time. The three-state breakdown is well suited for multinomial logit analysis, and allows for a significantly larger panel sample than in previous work.

From a policy perspective, this paper addresses two critical issues that have received little attention in the literature. First, it examines how political economy factors contribute to creating situations of fiscal distress, which are often perceived as being the main motivators of consolidation attempts. To the extent that the absence of serious fiscal difficulties is attributable to relatively competent financial management, this amounts to an analysis of the political and institutional determinants of sound fiscal policy. While there is plentiful anecdotal evidence of how political economy dynamics can help or hinder sound policies, there has not been much empirical work on this subject. Second, this paper proposes a new methodology that allows for an exploration of the political economy variables influencing the likelihood of successful fiscal efforts, defined as those cases when countries that are faced with a need to adjust actually manage to implement

sustained consolidation. Although this aspect is similar in focus to previous studies, it goes a step further by testing whether there is a difference between the factors that support this last type of urgent adjustment and those that foster the ability to avoid the need for consolidation in the first place.

The results of the investigation provide evidence that the political and institutional dimensions of large and sustained fiscal adjustments matter, particularly for developing countries. However, the probabilities of achieving an exceptional fiscal effort and maintaining good fiscal policy over time (that is, avoiding fiscal crises) are not influenced by the same set of political and institutional factors. This finding is best reflected in the results for economic institutions (proxied by a measure of the rule of law) in developing countries. Whereas high institutional quality is found to significantly increase the probability of avoiding a situation of fiscal distress, nations in fiscal difficulty that actually succeed in making large budgetary adjustments tend to have weaker institutions. One tentative interpretation of these findings is that, although strong institutions usually impose greater rigour on fiscal policy, rigid institutional frameworks can constrain government action in times of fiscal duress, impeding adjustment. Other results indicate that high levels of transfers and subsidies diminish the probability of successful adjustment in developing countries, whereas legislative majorities improve the odds. For advanced countries, strong democratic institutions are the only factors that show a positive and robust effect on the likelihood of avoiding situations of fiscal difficulty.

This paper is organized as follows. Section 2 briefly reviews the literature on the political and institutional determinants of fiscal adjustment, and serves to motivate the selection of explanatory variables. The empirical methodology is explained in section 3, followed by a discussion of the results in section 4. Section 5 concludes.

## 2. The Literature

There is a large and growing literature on the political economy dimensions of fiscal distress and adjustment (see Perotti 1998; Annett 2002; Persson and Tabellini 1999; and Pinho 2004 for general surveys). Key among the many factors considered are political stability, vested interests, social divisions, and the role of institutions.

## 2.1 Political stability

Weingast, Shepsle, and Johnson (1981) first put forward the "common pool" argument, explaining how government expenditures are positively linked to the number of different political groups demanding public allocations. Since each group fully benefits from its specific spending program but the burden of taxation is diffused, the cost of public expenditures is not fully internalized by the political decision-makers and could lead to greater-than-optimal public expenditures. Velasco (1999) shows how this type of fragmented fiscal policy-making produces a deficit bias. On the other hand, Lane and Tornell (1998) argue that competition among groups causes profligacy to decline as the number of groups increases.

Roubini and Sachs (1989) find that an index of political fragmentation correlates well with the size of deficits in advanced countries. They claim that, due to short tenures and the difficulty of reaching an agreement among different political parties, coalition governments are more prone to fiscal indiscipline. Edin and Ohlsson (1991) indicate that minority governments, rather than coalitions in general, are driving these results. Baldacci et al. (2004) conclude that strong government majorities encourage fiscal consolidation, and Alesina and Perotti (1995) report evidence that coalition governments are less likely to introduce adjustment measures. Grilli, Masciandaro, and Tabellini (1991) argue that it is the electoral system that matters, finding that countries with proportional electoral systems tend to accumulate more debt.

Tabellini and Alesina (1990) propose that the link between deficits and political instability is not necessarily caused by weak governments. In their model of a highly polarized polity with alternating majority governments, the risk of electoral loss leads policy-makers to run deficits that will constrain the actions of their successors (here, debt is considered to be a strategic variable).[2] This is consistent with Baldacci et al. (2004), who find that fiscal consolidation is decidedly less likely to occur during election years.[3]

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[2] Tabellini and Alesina explain how, by borrowing to immediately spend on its preferred type of expenditure, the party in power pushes the cost of debt servicing onto the next government, which, in turn, will be obliged to reduce spending in its favoured area. This sort of strategic behaviour has also been theoretically associated with external borrowing (Ozler and Tabellini 1991).

[3] A large body of literature establishes a link between fiscal policy and the electoral cycle, whether with voter expectations that are myopic (Nordhaus 1975) or rational (Rogoff and Sibert 1988).

In sum, the literature on political stability suggests that a stable government majority with effective control over fiscal decisions is what matters most for consolidation. Factors that contribute to this outcome, such as the nature of the electoral system or the timing of elections, may also influence the odds of success. These results reinforce policy-oriented empirical work that stresses the importance of government credibility.[4]

## 2.2 Vested interests

Organized interest groups can exert influence on public finances that goes beyond formal representation in the political arena (Persson and Tabellini 1999). These groups can introduce a deficit bias if weak institutions fail to prevent them from excessively influencing government expenditures (Lane and Tornell 1998). Moreover, they can be expected to oppose aspects of fiscal tightening that impose costs on them, and may delay consolidation by engaging in "wars of attrition" with other groups, to avoid bearing a disproportionate share of the adjustment burden (Alesina and Drazen 1991). Havrylyshyn and Odling-Smee (2000) argue that spending on subsidies and transfers is an indicator of rent-seeking vested interests, an assertion supported by several studies (e.g., Alesina and Perotti 1995; Gupta et al. 2003).[5]

## 2.3 Social divisions

Societal fractures, such as income inequality, demographic differences, and ethnic conflicts, could potentially have an effect on fiscal adjustment. For instance, Sachs (1989) holds that many countries were unable to implement austerity measures during the Latin American debt crisis because of downward rigidity in public consumption, caused

[4] In terms of increasing policy credibility, the composition of adjustment seems to matter most. Alesina and Perrotti (1995) show that successful consolidations focus on reducing politically sensitive expenditures, such as spending on transfers and government wages. Adjustments that are large (McDermott and Wescott 1996), sustained, and gradual (Baldacci et al. 2004) also tend to be successful. Similar results are found in a number of other studies, including Gupta et al. (2004) for least developed countries, Gupta et al. (2003) for emerging markets, and Purfield (2003) for transitional economies. Tavares (2004) concludes that, when parties take a fiscal stance running against the interests of their core supporters (e.g., left-wing expenditure cuts or right-wing tax increases), the credibility of the effort is enhanced. Over-ambitious fiscal targets and a history of failed adjustments are also found to lower the odds of success.

[5] Indeed, the authors indicate that, in transition economies, vested interests go so far as to seek subsidies, tax breaks, and directed credits from the authorities at the expense of macroeconomic stability.

by inequality-driven populist spending.[6] Berg and Sachs (1988) produce evidence of the role of income inequality in explaining debt defaults. Cukierman and Meltzer (1989) explain how intergenerational friction can produce a deficit bias, especially if older generations are poor. (Older populations are likely to be a bigger drain on the public purse if they have not adequately prepared for their retirement.[7]) There appears to be no theoretical or empirical consensus with respect to the role of ethnic fractionalization in fiscal adjustment. Just as it can be argued that ethnically diverse societies are more likely to suffer from political turmoil and disagree on the allocation of public goods, countries with a history of multi-ethnic cohabitation may have developed political institutions that allow them to constructively handle diversity of opinion, which may be helpful in managing fiscal adjustment. According to an empirical study by Dollar and Svenson (2000), high ethnic fragmentation diminishes the chance of successfully implementing structural adjustment programs. Annett (2002), however, finds that neither ethnolinguistic fractionalization nor older populations (the percentage of the population over 65) have statistically significant effects on public balances or adjustment efforts.

## 2.4 Institutions

Fiscal discipline has been empirically linked to a number of institutional factors, including budgetary centralization, transparency, fiscal rules, and parliamentary procedures (see Pinho 2004 for a review). In a more general sense, institutional quality is often proxied in the growth literature by an index of the rule of law, which evaluates the system of laws, conventions, and behaviour that support market economies, encourage investment, and protect public goods (Rigobon and Rodrik 2004; Rodrik, Subramanian, and Trebbi 2002). It seems reasonable to expect that high institutional quality could foster a more efficient public sector and minimize corruption, translating into a better use of revenues and increased tax collection. It could also ensure that fiscal policy will not fall prey to vested interests. The quality of democratic institutions might also have a

[6] Sachs (1989) explains that, in democracies with very unequal income distributions, enormous political pressure is put on governments to redistribute wealth to the poor. It is difficult to tax the wealthy or cut their benefits (Ravallion 2004), however, since they usually have disproportionate political clout and extensive influence over the legal system and the administration. Governments therefore engage in purely *distributional* policies that result in overborrowing.

[7] Similarly, older generations could be a source of resistance if they are unlikely to fully reap the future benefits of current fiscal efforts; however, this may not hold if people care about the debt burden born by their offspring. Different discount rates and wealth levels are important considerations in such issues of intertemporal wealth transfers.

significant impact on fiscal consolidation, though a priori there is some uncertainty regarding its net impact. Just as democracies can elect fiscal reformers, there could be instances where open and consultative democratic regimes fail to form the consensus necessary for a prolonged fiscal effort. Similarly, even though some autocrats are spendthrift, the absence of opposition in autocracies may facilitate the implementation of emergency fiscal measures.

Most of the work in this area is empirical. The IMF (2003a) finds public sector overborrowing to be negatively correlated with indexes of the rule of law and democratic accountability.[8] Satyanath and Subramanian's (2004) results suggest that democratic political institutions have a positive causal impact on long-run macroeconomic stability and fiscal balances. Abiad and Baig (2005) find that high democratic accountability and sound bureaucracies lower market risk and hence the need for adjustment in emerging-market countries. They also find that excessive constraints on the executive branch tend to lower the likelihood of a fiscal effort being implemented.

This cursory review reveals the literature's broad scope and lack of a unified framework. This suggests that an examination of political economy factors should adopt an explorative empirical methodology, casting a wide net over many different types of variables, rather than focusing on a particular theory.

## 3. Methodology

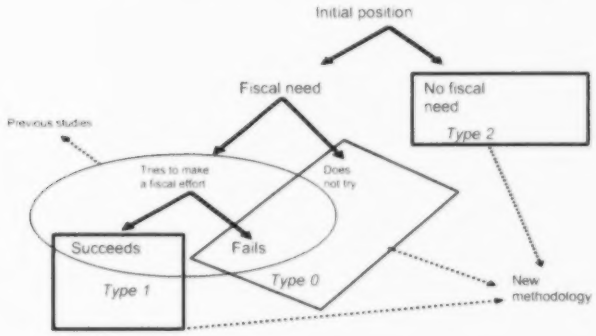
In general, the empirical literature considers only instances of attempted fiscal adjustment, with the analysis concentrating on the various factors that characterize success from failure.[9] A drawback of this approach is that it excludes the vast majority of periods during which no fiscal adjustment is being made, either because there is no need to consolidate or the country is unable to make the required effort. A more complete examination of the role of political economy factors in influencing a country's fiscal

[8] Francis (2003) produces similar results for financial instability.

[9] Binomial probit/logit analysis of discrete qualitative dependent variables is often used in the literature to estimate the impacts of different explanatory variables on the probability of achieving a successful fiscal adjustment. Samples consist of governments that have actually achieved consolidation of a certain size (usually 0.5 to 1.5 per cent of GDP) over a typically short period (one to two years). Success is determined according to whether a chosen fiscal variable (e.g., the debt-to-GDP ratio or the overall balance) improves significantly after the adjustment period.

situation requires the adoption of a new classification scheme. The proposed methodology can be explained using a diagram of a decision tree (Figure 1).

**Figure 1: New Classification Scheme**




In this framework, a government starts off either in a situation of serious fiscal need or not. If it does face such a need, it must decide whether to attempt a large fiscal adjustment; those that try will either succeed or fail. Previous studies limited themselves to analyzing those governments that were trying to make an adjustment (the circled grouping in Figure 1), focusing on the determinants of success or failure. Yet there is a selection bias in this approach, because it does not incorporate countries that needed to adjust but did not show evidence of attempting to do so. This implies that the results of earlier studies may not provide pertinent guidelines for countries that are often in fiscal difficulty. Indeed, because governments in fiscal distress frequently fail to improve their primary surpluses (this is the standard measure of consolidation in the literature), they are not adequately represented in previous samples.

This paper expands the sample set by introducing the notion of *fiscal need*, which makes it possible to differentiate between three different states: when a country succeeds in making a fiscal adjustment in the presence of a large need (type 1 in Figure 1); when a country fails to do so (type 0); and when a country faces no fiscal need (type 2). Type 1 "successful efforts" are similar to those in the literature,[10] but type 0 differs from earlier

[10] These efforts are similar, but not identical. In earlier work, presumably rare instances of attempted adjustment in the absence of a need are classified as successes or failures instead of instances of good fiscal policy, as is the case in this paper.

work by incorporating failed attempts at consolidation. Type 2 instances (that is, periods when countries face no need to consolidate, which can be interpreted as governments following sound fiscal policies) have previously been largely ignored in this field of political economy research.

The concept of *fiscal need* is critical to these new guidelines. Ideally, an indicator of *willingness to adjust* would be required, whereby all countries that wanted to make a fiscal effort would be classified as either having succeeded or failed. But willingness is difficult to measure. To get around the problem, it is assumed that any country facing an objective need for fiscal adjustment will actually attempt to do so. That is, the presence of a fiscal need is taken as a good proxy for a country's true desire to make a fiscal effort.[11] For this hypothesis to be reasonable, the *fiscal need* must be clear and pressing.

The core of this investigation consists of regressing political economy variables on a qualitative dependent variable that indicates in which of the three fiscal states a country finds itself (successful adjustment, unsuccessful adjustment, or no need to adjust). Each of the categories describes a state rather than a degree of fiscal adjustment. This makes the investigation more specific than simply explaining the behaviour of the primary balance, which can be affected by a multitude of factors that have little to do with fiscal consolidation.[12]

Four steps are required to generate the dependent variable, hereafter referred to as *fiscal status*. The first consists of cyclically adjusting the fiscal variables, which is often ignored in the literature.[13] The next two steps involve identifying instances of pressing need (*fiscal need*) as well as periods of large and sustained fiscal adjustment (*fiscal effort*). By comparing these two series to determine when needs are matched with efforts, *fiscal status* is determined in the final step. The procedure is detailed in section 3.1.

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[11] This approach is consistent with Sutherland (1997), who argues that, as a country approaches a critical debt threshold, deficits become increasingly contractionary, because agents expect massive consolidation to occur soon. Since expectations are key and depressed growth is a political liability, it seems logical to assume that fiscal adjustment is more likely to be attempted in times of financial duress. Moreover, as Velasco (1999) notes, consolidation may be possible only in times of distress if the fiscal excesses are driven by the "pork-barrel" demands of various interest groups. In other words, sometimes it takes a crisis to adjust.

[12] Another drawback of using the primary balance as the dependent variable, as Abiad and Baig (2005) do, is that it makes no distinction between periods of fiscal consolidation and those of growing deficits: all periods are considered to merely represent different degrees of fiscal effort.

[13] All fiscal data are taken from the World Bank (2002), focusing exclusively on central government accounts. While this may somewhat misrepresent the fiscal situation of countries where provinces or states have significant budgetary responsibility, no other data source is available for such a diverse sample. All data are on an annual basis.

## 3.1 Generating the dependent variable

***Step 1: Cyclically adjusting the data.*** Many previous studies are based on cyclically unadjusted fiscal data. This is potentially problematic, since fiscal improvements are strongly influenced by cyclical factors (Bulir and Moon 2003). In addition, business cycle effects often cause unadjusted fiscal series to fluctuate significantly from one year to the next, making it difficult to find instances of prolonged fiscal effort (this may partially explain the short periods used in the literature). To account for these effects on public expenses and revenues, a Hodrick-Prescott (HP) filter is applied to the fiscal variables used in this paper.[14] The resulting filtered values are interpreted as "structural" balances that are relatively unaffected by the current business cycle. If a government desires to make a large and lasting adjustment, it seems likely that most of the policy changes will need to affect the revenue and expenditure components of this core balance.

***Step 2: Identifying fiscal need.*** The next step involves identifying periods when governments face an urgent need to make a large and sustained fiscal adjustment. To reflect the idea that a fiscal need should be obvious and pressing, such periods are defined as years in which overall deficits are growing unsustainably fast, public debt ratios are above a critical threshold, or there is a financial crisis. Three specific triggers (identified in 2a, b, and c) are selected to qualify a particular year as one in which an adjustment effort is required.

**2a) Deficit need:** A fiscal need occurs whenever the cumulative total of central government deficits (using filtered values) over the past five years is greater than or equal to 20 per cent of GDP. The logic is that sustained deficits will eventually have undesirable effects on macroeconomic variables such as interest rates, inflation, and exchange rates. At some point, there will be political pressure to reduce the fiscal gap. In light of the lack of guidance from the literature regarding the selection of this parameter, robustness tests include lowering the threshold to 15 per cent.[15]

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[14] Lambda for the HP filter is set at 400, the accepted standard for annual data. To deal with the end-point problem presented by the use of filters, the last two data points from every country series are dropped. The only exception to the fiscal filtering rule is interest payments on public debt, since these are not deemed to be overwhelmingly determined by the business cycle. The smoothed primary surplus series is calculated by subtracting interest payments from the overall filtered deficit. Because interest rates are not filtered, some "jaggedness" is introduced into the primary surplus numbers that is not present in the overall deficit time series. Accordingly, annual changes in the primary surplus of less than 0.25 per cent of GDP are ignored.

[15] Higher thresholds (e.g., 30 per cent) tend to reduce the sample of fiscal needs dramatically.

**2b) Debt level need:** A need is also triggered when the gross public debt-to-GDP level remains above a certain threshold level for at least five consecutive years. The thresholds are those breakpoints estimated by the IMF (2003b) that indicate a change in fiscal regime at debt ratios of 50 per cent for developing countries and 80 per cent for advanced ones.[16]

**2c) Crisis need:** Finally, a fiscal need occurs in any year in which a country experiences a financial crisis (either banking, currency, or debt). The data on banking and currency crisis are taken from Glick and Hutchinson (1999) and the debt crisis dates are from Manasse, Roubini, and Schimmelpfennig (2003).

***Step 3: Identifying fiscal efforts.*** Following the literature, this study uses the primary balance (overall government balance minus interest payments) to evaluate adjustment attempts.[17] Three criteria (described in 3a, b, and c) identify a successful fiscal effort.

**3a) Size:** The change in the cyclically adjusted primary balance must be greater than 2.5 per cent of GDP over the period of consolidation. This is significantly higher than the thresholds found in the literature, which are usually based on one-year changes of non-cyclically adjusted fiscal variables. The selected limit, however, is comparable to the cumulative effect of a low-end yearly threshold (say, 0.5 per cent) sustained for several years. Robustness tests include raising the threshold to 5 per cent (this figure is used by the IMF 2004 to define large fiscal adjustments).

**3b) Duration:** To ensure that the fiscal improvement is more than a simple coincidence, the 2.5 per cent of GDP increase in the primary balance must be made and/or sustained over a certain period, preferably long enough to cover at least one business cycle. A period of six years is selected.[18]

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[16] The IMF finds that the policy link between the primary balance and the debt-to-GDP ratio disappears when the debt ratio surpasses 50 per cent, indicating a loss of fiscal control. On the other hand, the relationship intensifies for advanced countries after the 80 per cent threshold is breached, indicating that these countries take high levels of debt more seriously.

[17] A drawback to using the primary surplus as the metric of adjustment is that it does not adequately reflect the impact of debt restructuring, which influences the overall fiscal balance (through reduced debt servicing costs) but not the primary surplus. Even if debt restructuring is occasionally an important means of adjustment, however, it is not necessarily a lasting one, unless the primary deficit is reigned in as well. Thus, the primary balance probably remains the most pertinent indicator of continued fiscal effort in the majority of cases.

[18] There is a trade-off in selecting this parameter: too short a period will not provide enough time for drawn-out fiscal efforts to reveal themselves, while too long a period will not capture relatively compact efforts. The six-year period allows for the largest amount of successes of a reasonable duration.

**3c) Maintained effort:** The primary balance must be monotonically increasing over this period. This condition is not as harsh as may appear, because steadily rising or dropping values are the norm when using filtered variables. However, to ensure that small declines in the filtered primary surplus do not disqualify otherwise valid instances of fiscal effort, annual primary surplus deteriorations of less than 0.25 per cent of GDP are ignored.

Although any definition of fiscal needs and efforts will necessarily be somewhat arbitrary (the entire literature suffers from this weakness), the selected criteria generally describe the type of fiscal distress faced by (and the degree of adjustment required of) developing countries with debt sustainability problems.[19] In recognition of the fact that not all countries face the same constraints, various combinations of the three types of fiscal needs and different levels of fiscal effort are examined in the robustness tests.

It is worth noting that, contrary to many other studies, "success" in this analysis is measured only by the behaviour of a policy variable that is generally under the control of the government (the primary surplus), rather than some other factor (the overall deficit, the debt, growth, etc.) over which the authorities have only limited influence.

***Step 4: Matching effort with need.*** Having established the requirements for fiscal needs (which are basically backward looking) and efforts (which are forward looking), the two notions must be joined to identify the three states of *fiscal status*, the dependent variable in this analysis. To support the hypothesis that the fiscal need is driving the effort, it is important that the years of need and effort be very near each other and should ideally overlap. The following criteria are applied to determine *fiscal status*: whenever a country has a need that is matched with a fiscal effort either in the same year or the next, that year and any subsequent year in the remaining duration of the six-year fiscal effort will be termed a success and *fiscal status* will be attributed a value of 1. Any country-year where there is a fiscal need that is *not* met with a fiscal effort in that same year or the next is considered a failed effort and *fiscal status* is given a value of 0. Years in which there is

[19] For instance, throughout the 1980s, most of the debt crisis countries in Latin America would have qualified as instances of fiscal need. Moreover, according to their IMF programs, the IMF's three largest debtors (Brazil, Turkey, and Argentina) have promised to achieve significant primary surplus adjustments (increases of 1–4 per cent of GDP, on top of already sizable levels of public savings) over a short period of two to three years and maintain this degree of effort for a protracted period (well over six years). The size of these efforts is not unprecedented: the IMF records at least 260 episodes of attempted fiscal consolidation in excess of 5 per cent of GDP over the past three decades (IMF 2004).

no fiscal need are assumed to be years where the country is following good fiscal policies. Fiscal status in these instances takes a value of 2, regardless of the presence of a fiscal effort.[20] Table 1 summarizes the classification scheme.

**Table 1: Determining the Dependent Variable (*fiscal status*)**

| Fiscal need | Fiscal effort | Fiscal status |
|---|---|---|
| Yes | Yes | Success (1) |
| Yes | No | Failure (0) |
| No | Yes | No need (2) |
| No | No | No need (2) |

One exception is made to these guidelines: any country-year in which the filtered overall fiscal balance is greater than -2 per cent of GDP yields a *fiscal status* of 2. It is deemed that the urgency of making an adjustment is much reduced above this threshold, such that it can no longer be assumed that a fiscal need is a good proxy for a government's willingness to put a fiscal effort into effect. Gupta et al. (2003) find that the impetus for maintaining a fiscal adjustment seems to fade when deficits improve beyond this -2 per cent threshold. Annett (2002) uses a similar breakpoint.

It is important to note two weaknesses of this screening mechanism that extend beyond parameter selection. First, since the methodology does not measure the true willingness of a government to make a fiscal effort, it may under-represent attempts at fiscal consolidation. Indeed, fiscal efforts that are embarked upon without the presence of a current fiscal need are not counted as such (they are given a value of 2).[21] Second, a causal relationship is assumed between needs and efforts when they occur in close temporal proximity; in this respect, the methodology probably over-represents successful

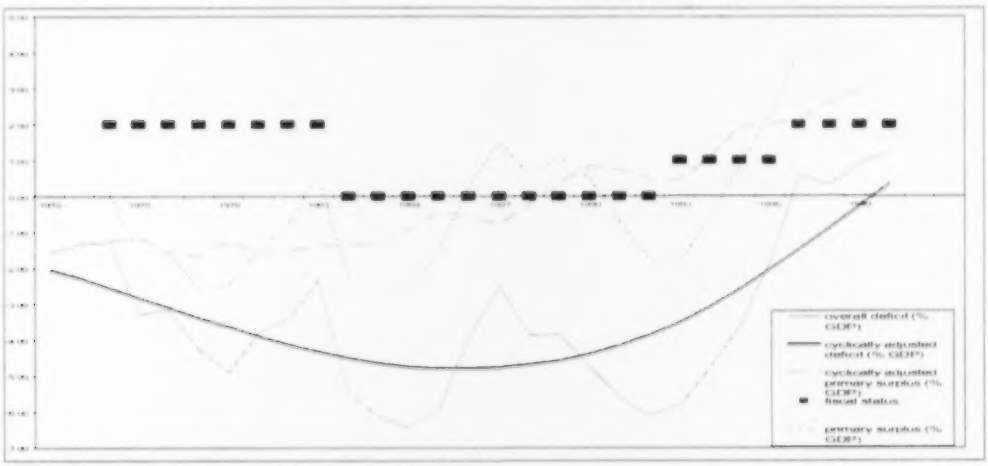
[20] It would have been possible to further divide type 2 results according to whether the countries made (type 3) or did not make (type 4) a fiscal effort, even though they had no need to. These categories, however, would not have contained a sufficient number of data points for statistical analysis. Moreover, the analytical value of such a further differentiation is not clear.

[21] For instance, intergenerational concerns or hidden "fiscal skeletons" may motivate some governments to take corrective action before a serious fiscal need develops: these types of good governance efforts would merely count as type 2s (good fiscal policy) rather than true fiscal efforts (type 1).

fiscal efforts. In spite of these drawbacks, however, it is not clear that there is a better alternative to this overall approach.

The generation of the *fiscal status* variable taking on discrete values of either 0, 1, or 2 is perhaps best understood using a graphical example for Canada. Figure 2 shows how the Canadian government's fiscal time series translates into both filtered and discrete values. (Note that the vertical axis in Figure 2 has a double function, representing *fiscal status* (0, 1, 2) as well as the primary surplus and the overall deficit as a portion of GDP.)

**Figure 2: Fiscal Status for Canada**[22]


overall deficit (% GDP)
cyclically adjusted deficit (% GDP)
cyclically adjusted primary surplus (% GDP)
fiscal status
primary surplus (% GDP)

From 1974 to 1981, Canada's cumulative deficit never surpassed the 20 per cent threshold (giving it a *fiscal status* of 2). In 1982, however, the five-year cumulative deficit exceeded the 20 per cent of GDP threshold and continued to do so for the next 13 years. While the primary surplus was generally on the rise, it did not respond sufficiently to qualify as a successful fiscal effort, generating a "failure" score of 0 from 1982 to 1992. It was only as of 1993 that a successful fiscal effort became evident in the data, yielding a *fiscal status* score of 1 from 1993 to 1996. In 1997, the cyclically

[22] In this case, a fiscal need is triggered by a five-year cumulative deficit equal to or greater than 20 per cent of GDP. A fiscal effort is achieved if the cyclically adjusted primary surplus rises by at least 2.5 per cent of GDP over the course of six years, never dropping on an annual basis for the entire period.

adjusted deficit finally fell below the 2 per cent of GDP threshold, at which stage the dependent variable is given a value of 2.[23]

An identical exercise is carried out for a wide range of developing and advanced countries, producing a *fiscal status* variable with 727 data points. Table 2 shows the *fiscal status* of all the countries in the sample from 1987 to 2000. Episodes of successful fiscal efforts appear to be relatively rare, which is to be expected, given the exceptional nature of such large and lasting adjustments. The ratio of successful fiscal efforts to total needs is about 30 per cent for both advanced and developing countries, suggesting that the propensity to adjust is not dependent on the level of development.[24] There also appear to be many instances of fiscal needs (types 0 and 1); in fact, they make up about half of all the years in the sample (this is true of both advanced- and developing-country subsets). This could be partially a result of the limited time period, although stretching the sample back to the 1970s would more than likely generate an even greater portion of needs, since it would include the era of the Latin American debt crisis. In the end, it may not be surprising that countries often go through prolonged periods of fiscal need without being able to effectively implement remedial measures. Indeed, one of the principal reasons for these delays may be political economy factors.

## 3.2 Selecting the explanatory variables

Having defined the dependent variable, the next step in the methodology involves selecting appropriate explanatory factors. The ten chosen political economy variables are taken from the literature and can be roughly divided into three groups. The first reflects political stability factors and includes the percentage of the legislature controlled by the government (*margin of majority*); dummy variables for executive election years (*elections*) and for first-past-the-post electoral systems (*plurality*—this is the main alternative to proportional systems); and an index assessing a government's ability to stay in office (*government stability*). The second group considers salient aspects of a country's socioeconomic structure that could lead to distributional conflicts, including the

[23] For a thorough analysis of Canadian debt dynamics and fiscal policy options during the adjustment period, see Macklem, Rose, and Tetlow (1995).

[24] This ratio does not, however, imply that the majority of fiscal needs were not eventually dealt with by the governments, but merely that their responses did not qualify as large and sustained fiscal adjustments. For instance, several short, disconnected periods of adjustment would not qualify as a fiscal effort, though they could, nonetheless, be sufficient to correct the fiscal imbalances.

distribution of income (*inequality*), rent-seeking vested interests (*subsidies and transfers*), *ethnolinguistic fractionalization* (in 1985), and the portion of the *population over 65*. In the third group, indexes of the *rule of law* and *democratic accountability* represent the quality of economic and political institutions, respectively. The first index is intended as a measure of economic governance, embodied by the sum of the institutions that manage public resources and provide a framework for the organization of private activity.[25] The second index gauges the responsiveness of a government to its people. High values are attributed to strong democracies, and very low scores to autocracies. This index includes a variety of institutional factors, such as the quality of elections, the freedom of political debate, the system of checks and balances, and the protection of personal liberties. Table 5 provides a more detailed description of all political economy variables used in the regressions and their sources.

Three of the explanatory indexes (*rule of law*, *democratic accountability*, and *government stability*) are produced by the PRS Group (2002) in their *International Country Risk Guide* (ICRG).[26] These scores are holistic measures of political economy conditions based on the evaluations of country specialists. They have the advantage of generating a "bottom-line" evaluation of well-defined political economy criteria that would be difficult for non-experts to obtain. Moreover, unlike more specific institutional variables (such as, for instance, the degree of budgetary transparency), they are available for a large number of countries over a fairly long time period. A disadvantage of these indexes is that they are subjective, which raises issues regarding the consistency of the ratings between each other and across time.[27] Another difficulty is that these variables are not necessarily independent of fiscal efforts. Though the causal link runs primarily from

[25] The literature typically captures the quality of economic institutions through two variables: measures of *law and order* and *investor protection*. This study simply takes a weighted average of these two types of scores to generate the *rule of law* series. The estimation results are qualitatively similar when using either of these scores instead of the *rule of law*.

[26] The ICRG database has wide country coverage and a high degree of index specificity. The database goes back to 1984, which probably makes it the largest of its kind available. It should be noted that Glaeser et al. (2004) do not consider ICRG rankings to be good indicators of institutions, since they appear to be both variable and mean reverting. Institutional quality, however, especially with respect to policy implementation, may change over time and differ greatly across countries (Aron 2000). Even mean reversion, if this is indeed a characteristic of the data, is not necessarily problematic (institutional quality could be stationary over a given time period).

[27] On the other hand, more "objective" measures, such as statistics derived from official sources, have the drawback of not always representing consistent political economy factors. For instance, a minority government may indicate political instability in a country accustomed to electing majority governments, but not in another where there is a tradition of coalition arrangements.

political economy factors to fiscal policy, it may be that consolidation attempts also influence political and institutional variables. To address this endogeneity issue, the average value of the past three years (not counting the current year) is used to measure the *rule of law*, *democratic accountability*, *government stability*, *inequality*, and *subsidies and transfers*. These transformed variables should be predetermined with respect to the country's *fiscal status* so long as the ICRG analysts determining the three index scores are not basing them excessively on a correctly evaluated *future* fiscal situation.

Control variables are included in the estimation to account for all the economic fundamentals potentially affecting a country's need and willingness to make a fiscal effort. The same set of control variables is used in all the regressions: country openness (trade/GDP), government revenues (filtered), local and global real growth, inflation (an indicator of macro-stability and seignorage revenues), and the type of exchange rate regime.[28] For developing countries, the existence of an IMF program is also indicated with a dummy variable, as is the status of being a least-developed country. All these variables are briefly described in Table 5. [29]

### 3.3 Descriptive statistics

Before beginning the econometric analysis or discussing causal relationships, it is useful to review the data. Tables 3 and 4 compare the means and standard errors of the different explanatory variables according to their fiscal status. The descriptive statistics are, on the whole, reflective of the multinomial logit regression results reported in section 4.

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[28] *Openness*: the more open an economy, the more the outside world acts as a fiscal anchor for the government. To the extent that reckless policies will destabilize external balances in highly open countries, openness encourages fiscal rigour. In addition, vested interests tend to thrive in closed economies. *Government revenues*: higher levels of government revenues are a sign of efficient tax collection as well as greater fiscal manoeuvring room (the larger the revenue base, the easier it is to orchestrate a given level of fiscal adjustment). Gupta et al. (2003) find that higher total government revenues increase the odds of completing a fiscal effort in developing countries. *Growth*: Although the fiscal data used in this investigation are cyclically adjusted, growth may have indirect effects on prospects for fiscal consolidation (e.g., it may be easier to bear the political cost of adjustment when growth is strong; see Annett 2002). *Exchange rate regime*: theoretically, the expected sign of this variable is not clear a priori. Fixed regimes, however, tend to be at the origin of many financial crises, and instances of successful fiscal adjustment are often preceded by significant depreciations. Although data limitations precluded the use of financial market control variables for such a wide variety of countries, future work should strive to integrate them.

[29] Several variables in the literature are not included in the regression for theoretical and technical reasons. Because the criteria for *fiscal need* are based on deficits, debt levels, and crises, these factors cannot be included among the explanatory variables. Similarly, variables such as the size and duration of the adjustments are also predetermined criteria for identifying *fiscal efforts*. On a more technical level, policy factors such as the composition of the adjustment (taxes versus expenditures) are not applicable, given that most of the countries in the sample are not, in any given year, actually making a fiscal adjustment.

One salient aspect of the data is the considerable difference in the average political economy values of advanced and developing countries. Not surprisingly, the ICRG indexes are significantly higher among advanced countries for all three types of fiscal status. Because the high correlation between these indexes and the level of country income tends to produce multicollinearity problems (see Francis 2003), separate regressions are run for advanced and developing country samples.

Within developing countries, it is notable that governments that successfully make a fiscal effort (type 1) have, on average, lower mean scores for rule of law, democratic accountability, and government stability than the other two groups. They also have a higher prevalence of majority governments and first-past-the-post electoral systems, as well as younger populations, greater income inequality, and fewer subsidies and transfers. This paints a picture of governments with relatively larger degrees of executive power, lighter social expenditure burdens, and fewer institutional checks and balances compared with their peers. These characteristics may facilitate the implementation of tough fiscal measures that would otherwise encounter greater resistance in countries with more constraining economic and political institutions.

At the other end of the spectrum, developing countries that avoid situations of fiscal distress (type 2) appear to have better economic institutions and greater government stability than the other groups. In addition, they also tend to be more multi-ethnic, have a higher degree of subsidies and transfers, and are less likely to have majority governments. Interestingly, many of these qualities are similar to those of typical advanced nations. Countries unable to make a needed fiscal effort (type 0) tend to be more democratic and have proportional electoral systems. They also have rather low levels of inequality and older populations, two possible sources of high government expenditures. This profile potentially highlights the difficulties of cutting large social expenditures in a democratic environment.

For advanced countries, the discrepancies are much less pronounced. The most well-defined group is that of fiscally responsible governments (type 2), which have the highest mean scores for the rule of law, democratic accountability, and government stability. On average, they also have more subsidies and transfers and a higher incidence

of first-past-the-post electoral systems, though, like their developing-country counterparts, they have slightly fewer instances of majority governments. In addition, executive election years occur more often in countries that run sound fiscal policies (it may be in the interest of the government to call an election when the fiscal situation is under control). Advanced countries that fail to make fiscal efforts (type 0) are typically less democratically accountable, less stable, and have weaker economic institutions. On average, they also have a lower degree of subsidies and transfers, less inequality, are not particularly multi-ethnic, and have slightly older populations. Not surprisingly, these countries in fiscal difficulty tend to call elections less often. Type 1 countries have attributes that lie somewhere in-between the averages of the other two types. They have no particularly distinct characteristics, aside from slightly younger populations and a tendency not to have first-past-the-post electoral systems.

### 3.4 Estimation framework

The determinants of the three discrete outcomes of *fiscal status* potentially lend themselves to estimation using a standard unordered multinomial logit model. As with binomial logit models, in a multinomial set-up the probability of one outcome occurring versus another in the dependent variable ($Y$) is a non-linear function of explanatory variables ($X$). In multinomial models, however, a base-case outcome must be selected against which the other outcomes can be compared (in the 0/1 binomial case, this choice is automatically the 0 outcome); analytically, the choice of base is irrelevant. The fiscal status of 0 (failure to make an effort) is chosen as the base case in this study. This is equivalent to setting $\beta_0$ equal to 0 in the cumulative logistic distribution function:

$$Pr(Y=0) = e^{X\beta 0} / ( e^{X\beta 0} + e^{X\beta 1} + e^{X\beta 2} ) = 1 / ( 1 + e^{X\beta 1} + e^{X\beta 2} ),$$

$$Pr(Y=1) = e^{X\beta 1} / ( e^{X\beta 0} + e^{X\beta 1} + e^{X\beta 2} ) = e^{X\beta 1} / ( 1 + e^{X\beta 1} + e^{X\beta 2} ),$$

$$Pr(Y=2) = e^{X\beta 2} / ( e^{X\beta 0} + e^{X\beta 1} + e^{X\beta 2} ) = e^{X\beta 2} / ( 1 + e^{X\beta 1} + e^{X\beta 2} ),$$

where $\beta_0$, $\beta_1$, and $\beta_2$ represent the coefficients for fiscal status 0, 1, and 2, respectively. The relative probabilities of outcomes 1 and 2 compared with the base case, 0, are:

$Pr(Y=1) / Pr(Y=0) = e^{X\beta 1}$ and $Pr(Y=2) / Pr(Y=0) = e^{X\beta 2}$.

$\beta_1$ measures the marginal effect of a change in the independent variable $X$ (for instance, some political economy variable) on the probability of being in fiscal status 1 (that is, making a successful effort) relative to the probability of being in fiscal status 0 (that is, failing to make a fiscal effort). Similarly, $\beta_2$ measures the marginal effect of a change in $X$ on the probability of being in fiscal status 2 (that is, not being in a situation of need) relative to the probability of being a type 0. Direct comparisons between types 1 and 2 can be made by simply taking the ratio of their estimated coefficients; that is,

$$Pr(Y=1) / Pr(Y=2) = e^{X\beta 1} / e^{X\beta 2}.$$

Two regressions are run simultaneously: one of each of $e^{X\beta 1}$ and $e^{X\beta 2}$. Thus, two coefficients are generated for each explanatory variable: one to represent the variable's effect on the probability of being a type 1 with respect to the probability of being a type 0, and another for the 2/0 comparison. The joint regressions allow for a significantly higher sample size than the alternative of running binomial logit regressions individually for each of the 1/0 and 2/0 odds.

For the multinomial logit approach to be valid, it is necessary that the probability of achieving one particular outcome versus another (say, being a type 1 versus a type 0) be independent of the existence of other alternatives (in this case, the option of being a type 2). Formally, this condition is referred to as the independence of irrelevant alternatives (IIA) (see McFadden 1984).[30] The seemingly unrelated regression estimation (SURE) technique, which is a generalization of the Hausman test for cross-model hypotheses, is used to test whether the IIA condition is verified. The chi-squared test results based on the final specifications failed to reject the null hypothesis that IIA holds for either advanced or developing countries, indicating that the multinomial approach is appropriate.[31]

The regression model is as follows:

$$Y_{it} = c + \alpha X_{it} + \delta Z_{it} + u_{it},$$

[30] McFadden explains the IIA condition succinctly: "The usual implication is to note that if two choices exist, say car and bus in a transportation choice application, then the addition of a third choice, subway, will not change the ratio of probabilities of the initial two choices."

[31] The test involves estimating a couple of bivariate logit models and then comparing the estimated coefficients with those of the full multinomial model. Under the null hypothesis that IIA holds, the estimated coefficients should be similar.

where $Y$ is the *fiscal status* dependent variable in country $i$ at year $t$; $X$ is a vector of political economy explanatory variables; $Z$ is a set of economic control variables; $\alpha$ and $\delta$ are the coefficient associated with the ratio of probabilities (the equivalent of $\beta$ in the above discussion); $c$ is a constant, reflecting the pooled nature of the regression;[32] and $u$ is the error term. To account for the heterogeneous nature of the countries involved, robust standard errors are used by adjusting for country-level clustering in the error term.

The regression results for developing and advanced countries are reported in Tables 6 and 7, respectively. There are a couple of challenges to determining the appropriate econometric specification. First and foremost, the explorative nature of the investigation precludes focusing the specification on one or two political economy variables ex ante. Second, the particular structure of the multinomial technique, which produces two regression outputs, makes it difficult to follow established specification procedures. A purely empirical approach is adopted to deal with these difficulties. Following the logic that any pertinent variable should at least show some econometric significance on its own, each of the political economy variables is first regressed individually (along with the unreported control variables) on the dependent variable *fiscal status* (columns 2–10 in Table 6, and 2–11 in Table 7). Those variables with coefficients statistically different from zero at the 80 per cent level of confidence are then included in a subsequent regression (column 12 in Table 6 and column 11 in Table 7). Any non-significant variables are dropped from the final specifications, which are reported in the last column of each table.[33] The results are reported in terms of marginal effects.[34]

Tables 8 and 9 show the results of robustness tests. The robustness of the final specifications to changes in the definitions of fiscal need and effort is tested in various regressions, coupling small (2.5 per cent of GDP) and large (5 per cent) fiscal adjustments with different combinations of fiscal need indicators, including a large

[32] While fixed effects would perhaps have been preferable, the relative scarcity of type 1 data points does not provide enough degrees of freedom for the inclusion of a constant for each country. But, even abstracting from this technicality, the reliance of the maximum-likelihood technique on large-sample asymptotic normality puts a high premium on degrees of freedom in a still relatively small data set.

[33] The final specifications consist solely of those variables that were significant at the 10 per cent level in the individual regressions.

[34] Because of the holistic nature of the political economy variables and the difficulty in interpreting changes in the indexes, the analysis of the results focuses on the sign and significance of the estimated parameters, rather than on the size of the coefficients per se.

cumulative deficit trigger (20 per cent of GDP), a smaller one (15 per cent), and the presence of a financial crisis. The robustness of the results to the removal of the 2 per cent deficit threshold is also examined.

# 4. Estimation Results

## 4.1 Overview

The results provide evidence that the political economy dimensions of large and sustained fiscal adjustments matter, particularly for developing countries. That said, the factors found to increase the probability of achieving a successful adjustment effort are not the same as those favouring the maintenance of sound fiscal policies. In developing countries, successful fiscal consolidation is found to be associated with strong majority governments, low levels of subsidies and transfers, and relatively weak economic institutions. However, the probability of developing countries following sound fiscal policies (that is, not being in a situation of fiscal need) is positively associated with higher institutional quality, as well as greater inequality. For advanced countries, political economy factors do not appear to play significant roles in fiscal adjustment, but increased democratic accountability improves the odds of running sound fiscal policies.

The results confirm this paper's basic hypothesis that political economy factors significantly affect the need and willingness of governments to implement large and sustained fiscal adjustments. Indeed, the inclusion of a relatively small number of political economy variables considerably improves the overall fit of the models. As Table 10 shows, the pseudo-$R^2$ indicator for developing countries rises from 0.07 using only the control variables to 0.25 in the final specification; for advanced countries, it increases from 0.13 to 0.20.[35] This suggests that political economy factors play a greater role in the fiscal adjustments of developing countries, perhaps as much as economic

[35] The pseudo-$R^2$ (a log-likelihood measure) for qualitative variable models cannot be interpreted as the equivalent of $R^2$ in linear models (Greene 1997). Nonetheless, it is a commonly used measure of overall fit. Another indicator of overall fit is the number of times that predicted fiscal states correspond to actual outcomes. The model attributes the highest probability to the actual outcome (i.e., type 0, 1, or 2) in 62 per cent of cases for developing countries and 53 per cent for advanced countries. Since no fiscal status outcome ever consists of more than 50 per cent of the total sample for either country group, the model appears to outperform a random draw.

fundamentals. The results for the control variables, shown in Table 10, are generally consistent with expectations and fairly robust to specification changes.[36]

## 4.2 Developing countries

This paper's most interesting finding is that the political economy characteristics that help developing countries to make large and sustained fiscal adjustments are not necessarily those that help them to avoid situations of fiscal need. The results for institutional variables are particularly salient. More precisely, a high *rule-of-law* score is found to have a positive effect on the probability of a country running a sound fiscal policy (i.e., being a type 2), but a negative influence on the chances of it succeeding at a fiscal effort (that is, being a type 1). This result is very robust, withstanding specification changes and all modifications to the definition of fiscal needs (Table 8).

The positive effect of the *rule of law* on the probability of avoiding a situation of fiscal need (i.e., being a type 2) is broadly consistent with the literature. There are a number of potential explanations for this result. For instance, if the rule of law is a good proxy for the quality of economic institutions, then a high score in this index may reflect an efficient public sector. This suggests an effective use of government resources, sounder microeconomic policies, and less susceptibility to corruption and abuse, all of which help control government expenses. Strong institutions may also foster higher revenues for a given tax system, since agents trust that taxes will be collected fairly and used wisely, and evasion punished. Perhaps most importantly, a strong rule of law may help diminish the power of rent-seeking vested interests that have a stake in impeding fiscal adjustment.

Interpreting the negative effect of the *rule of law* on the likelihood of a successful fiscal effort (type 1) is less straightforward. One, admittedly tentative, explanation is that weak institutional frameworks could provide authorities with more latitude to adopt the

[36]For developing countries, successful fiscal efforts (type 1 country instances) are associated with flexible exchange rates, strong world growth, and higher levels of government revenues. Strong growth appears to favour fiscal responsibility (type 2). Interestingly, IMF programs do not have a measurable effect on fiscal adjustment, which is consistent with the findings of Bulir and Moon (2003). For advanced countries, fiscal responsibility (type 2) is associated with flexible exchange rates, high growth, and low inflation.

types of unorthodox policies—including ones that could run contrary to the law—that are sometimes required in dire fiscal situations. For instance, in accomplishing large and sustained fiscal adjustments, governments could be obliged to break contracts (e.g., with public servants and suppliers), impose legal restrictions (capital barriers, deposit freezes, etc.), and perhaps even violate property rights (forced nationalization, debt defaults). Weaker institutional structures, particularly those that can be easily swayed by the executive, would facilitate a government's task in these extreme situations.

This interpretation gains further support when the countries making up type 1 instances are considered (Iran, Ethiopia, Kenya, Nicaragua, Egypt, Pakistan, Bulgaria, Zimbabwe, Jordan, Malaysia, Sri Lanka, the Philippines, and Morocco;[37] see Table 2). Most of these countries have autocratic governments, or at least had them during their periods of fiscal adjustment. The degree of executive leeway in these regimes is probably quite high, which could explain the low rule-of-law score and would be consistent with a certain ability and willingness of these governments to "bend the rules" when required. Moreover, there does not appear to be an obvious common trend among these countries (such as geographic proximity, conflicts, or oil-exporter status) that would help explain their shared ability to make large fiscal efforts. No particular country dominates the sample, and the fiscal efforts occur over a wide range of time periods, suggesting that there was not some single global event that favoured the adjustments.[38]

Taken as a whole, the results for the quality of economic institutions in developing countries are consistent with the following explanation: high institutional quality usually imposes greater rigour on fiscal policy, but inflexible institutional frameworks can constrain government action in times of fiscal distress, impeding fiscal

[37] The countries are listed in descending order of importance in the sample: from eight years in Iran to three years in Morocco.

[38] It is interesting to note, however, that, aside from Nicaragua, there are no type 1 Latin American countries in the sample (although they are well represented in terms of failed fiscal efforts). This suggests that Latin American governments have particular difficulty in making large and sustained fiscal efforts, a notion well backed by the debt crisis literature.

adjustment.[39] If this view is correct, then it follows that institutional structures in many fiscally vulnerable developing countries may be too rigid.[40] This interpretation is broadly in line with Abiad and Baig (2005), who find that high executive constraints (a measure of checks and balances) weaken fiscal efforts by inducing decision-making paralysis.

Another robust result for developing countries is that high levels of *subsidies and transfers*, a proxy for rent-seeking vested interests, significantly diminish the probability of successfully carrying out a large fiscal adjustment.[41] This result is consistent with the literature and confirms that cuts in these expenditures are among the most effective policy measures for successful consolidation. Interestingly, there does not appear to be a significant difference between the level of subsidies and transfers found in types 0 (failure) and 2 (no need). One explanation may be that the variable is only a good proxy for vested interests among countries with relatively low levels of governance, typified by governments that are often in situations of fiscal need. For countries with better governance standards, such as advanced nations and developing countries that usually run sound fiscal policies (type 2), subsidies and transfers may not present a significant obstacle to adjustment.

[39] A practical example of this interpretation can be observed by comparing the post-crisis fiscal adjustments in Argentina (2000–03) and Russia (1998). Throughout the 1990s, Argentina had a higher *rule of law* score than Russia, reflecting, among other things, an independent judiciary, strong property rights, a developed federal system, a friendly foreign direct investment policy, sound banking regulations, and political commitment to a currency board. In Russia, market institutions were not well entrenched and much discretionary authority remained in the hands of the executive. During and after its crisis, the Argentine government encountered a multitude of institutional and political obstacles that prevented it from restoring macro-stability and significantly increasing public savings. For example, the steps of dropping the currency board, freezing dollar deposits, converting them to pesos, amending utilities contracts, reaching a revenue-sharing deal with the provinces, and ultimately defaulting on sovereign debt all encountered significant legal, constitutional, and political challenges that considerably delayed the adjustment process. In Russia, where there was no effective opposition to the central authority and few institutional limits, the government was able to take drastic action quickly. Almost at the stroke of a pen, public debt was massively restructured, principal payments on foreign debt were frozen, and capital controls were put into place, all of which contributed to Russia's relatively rapid rebound after the devaluation. Of course, the subsequent improvement in the Russian fiscal situation had much to do with the price of oil, but sweeping tax reforms also contributed.

[40] This rigidity could occur for several reasons. Perhaps the most intriguing is that the greater vulnerability of certain developing economies to fiscal shocks may lead to excessively unyielding institutional frameworks designed to reinforce the intertemporal credibility of public policies by strictly constraining the government's behaviour. Although these rigid rules may well help the countries to avoid getting into fiscal difficulties, when a large shock does occur the constraints become a liability. Alternatively, this rigidity may simply be the result of slowly evolving institutions that have failed to keep pace with economic and financial developments.

[41] The impact of *subsidies and transfers* is not significantly different from zero when the source of fiscal need is uniquely a financial crisis.

The *margin of majority* is the only political variable found to have a significant effect on the fiscal status of developing countries. This is consistent with earlier work indicating that political stability and effective government control over the budgetary process increase the chances of a successful fiscal effort. However, Table 8 shows that this result is not robust to certain changes in the definition of fiscal adjustment; in particular, the coefficient is not significant for very large fiscal efforts (5 per cent of GDP). Nevertheless, it is always positive and remains significant during crisis-provoked needs.

The results for *inequality* are the [illegible] ones seemingly at odds with mainstream theory. In fact, high *inequality*, as measured by Gini indexes, is found to significantly increase the probability of being a type 2, meaning it decreases the likelihood of a country getting into a situation of fiscal need, the opposite of Sach's (1989) prediction. This result could potentially be attributable to the heavy fiscal burden of large redistributive programs. Indeed, a government that manages to flatten income distributions may be saddled with large consumption expenditures and transfer obligations, making it more prone to get into fiscal difficulty. Countries with lower redistributional burdens (and consequently greater inequality) may find they have more fiscal breathing room.

## 4.3 Advanced countries

The most robust finding for advanced countries (Tables 7 and 9) is that democratic accountability has a positive influence on the probability of avoiding a situation of serious fiscal need. Moreover, it would seem that election years also enhance the likelihood of a type 2 (no fiscal need) outcome. Both these results suggest that stronger democratic systems encourage sound fiscal policies, which is consistent with recent research suggesting that democracy may be a deep determinant of overall macroeconomic stability (Satyanath and Subramanian 2004). As expected in the literature, the robustness tests also reveal that large fiscal efforts (a 5 per cent primary surplus adjustment) tend not to occur during election years. Neither of the election coefficients, however, is robust to changes in the definition of fiscal needs or the level of adjustment.

Although further research is required before drawing any firm conclusions, as a whole these results are compatible with the notion that there is a greater political appetite for fiscal rigour in advanced countries than in developing ones. Indeed, this would be congruent with the findings of Alesina, Perotti, and Tavares (1998), who show that fiscal consolidation does not negatively influence electoral outcomes in industrialized economies.[42] The stark differentiation between the two country groups with respect to the role of democracy in fiscal adjustment is likely attributable to a myriad of historical, social, economic, and political factors that are beyond the limited empirical scope of this paper.[43]

It is interesting to note that, as opposed to the results for developing countries, advanced nations making fiscal adjustments are not characterized by relatively weak economic institutions (i.e., a low rule-of-law score). Indeed, a comparison of simple averages (Table 4) shows that there is little difference in the levels of institutional quality between countries that fail to make an adjustment and those that succeed in doing so. However, countries avoiding a situation of fiscal distress display a notably higher mean rule-of-law score, a result similar to that found for developing countries. Although this last relationship is not significant in the final econometric specification for the advanced group, it is significant at the 20 per cent level when the rule of law is considered individually (column 2 of Table 7).

This result indicates that the differences between advanced and developing countries may not be as stark as the final specifications suggest. The most salient commonality revealed in the descriptive statistics (Tables 3 and 4) concerns the characteristics of countries running sound fiscal policies (type 2). For both advanced and developing countries, type 2 instances have higher mean scores for the rule of law,

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[42] It would seem that no studies have yet addressed this issue for developing countries. The literature does not, however, indicate that fiscal consolidations are less contractionary in advanced countries than they are in developing ones. In fact, Purfield (2003) and Giavazzi, Jappelli, and Pagano (2000) actually find that instances of expansionary fiscal consolidations are more common in developing countries.

[43] Some possible explanations (and areas for future research) include the fact that advanced countries have higher levels of education (increasing public awareness of the importance of government finances) and material well-being (allowing efficiency arguments to trump distributional conflicts for the average voter), as well as a relatively more diversified media (encouraging broader information dissemination and a franker discussion of public policies). Another tentative explanation may be that the formal political institutions of advanced countries adequately represent and integrate socioeconomic conflicts, such that the best democracies may be capable of resolving these tensions in a manner that does not weigh too heavily on public finances. In developing countries, however, where political systems are relatively immature, socioeconomic conflicts may be left to fester outside of the formal political sphere.

democratic accountability, and government stability than types 0 or 1. Indeed, each of these variables generates a positive coefficient when regressed alone with the control variables (columns 2 to 11 in Tables 6 and 7).

Some of the differences between the coefficients of the two country groups could stem from technical factors. Although the actual correlations between the explanatory variables are not particularly high, multicollinearity could still be affecting the results to a limited extent, particularly in advanced countries. There is also the simple fact that there is less variance between the political economy scores of advanced countries than is the case for developing ones. It may be that changes in the ICRG variables differ in their applicability to the two country groups; for instance, small variations in the scores of advanced countries may actually indicate significant political economy developments, events that would warrant a greater absolute change in the indexes of developing countries.

The suggested dependence of good fiscal policy on democracy, sound economic institutions, and political stability—in advanced and developing countries alike—is an important thesis that merits further research. More detailed investigations may reveal stronger empirical linkages.

## 5. Conclusion

This paper contributes to the existing literature by expanding the range of situations in which the role of political economy factors in fiscal adjustment can be examined. It considers the effect of these variables not only during periods of fiscal adjustment, but also during periods when governments should be making fiscal efforts and fail to do so, as well as periods when no adjustment is required. The new methodology is used to address issues that have not received much attention in the literature, including the role of political and institutional factors in fostering sound fiscal policies, and whether those factors differ for countries that are actually in the process of fiscal consolidation.

Although the paper's results and interpretations are preliminary, they do suggest some general conclusions. The most obvious is that fiscal programming in developing countries should take into consideration political economy factors. Since the results show

that political economy forces have a significant impact on fiscal adjustment, it follows that programs failing to adequately account for political and institutional realities may run a higher risk of failure; at the very least, they will misrepresent the constraints facing policy-makers. Detailed political economy analyses may be of particular relevance for IMF programming, helping to produce feasible fiscal plans and borrowing strategies that better suit the needs and capabilities of client countries.[44] They could also assist in formulating and implementing coherent structural reform programs.

The findings also lend support to the notion that sound institutions are key to long-run economic welfare and efficiency. A growing literature is providing evidence that respect for the rule of law and democratic accountability are important determinants of growth and macroeconomic stability; this paper's results suggest that these same institutional factors also enhance the likelihood of maintaining sound fiscal policies. This comforting conclusion endorses the priority accorded to institutional reform in recent development policy.

The results highlight the importance of fiscal flexibility in developing countries. Strong legislative majorities and lower subsidies and transfers—two factors found to increase the odds of successfully making a fiscal effort—are clear indicators of a government's margin of manoeuvre. This is consistent with recent reviews of the debt crisis literature claiming that only those governments that were relatively unhampered by political economy constraints managed to make the fiscal adjustments required to avoid defaulting in the 1980s (Lavigne 2006).

The critical role of fiscal flexibility is further underscored by this paper's proposal that weaker institutions may allow certain governments to take the drastic action sometimes required to adjust in periods of need (albeit at the cost of increasing the probability of a relapse into financial distress later on). If this interpretation is valid, it follows that a reduction in institutional rigidity may be preferable in fiscally vulnerable countries, to ensure that their governments can implement essential fiscal measures in times of crisis without undermining the integrity of their legal and democratic frameworks. It is important to note that this is by no means an endorsement of weak

[44] In certain cases, for instance, it should be recognized that a cessation of IMF lending to a government lacking the political or institutional capacity for sustained fiscal reform may be in the long-term interest of the country.

institutions; on the contrary, the results clearly indicate that sound fiscal policies are encouraged by strong institutions. Institutions, however, may need to be strengthened *by* increasing their flexibility, in such a manner that they can remain anchors of stability in times of fiscal distress, but without being an insurmountable obstacle to adjustment.

The types of reforms suggested by this interpretation are not simple, since there is likely a trade-off between institutional flexibility and predictability at some point. Nevertheless, lower predictability need not necessarily imply arbitrariness or reduced credibility. One way of proceeding could be to implement institutional reforms that clarify the "rules of the game" under a variety of situations, including fiscal distress. For instance, this could involve developing better public bankruptcy laws, introducing contingency clauses in government contracts and debt instruments (making them easier to modify under certain circumstances), or clearly defining authorities' emergency powers in a financial crisis. Of course, these are mere suggestions, since the determinants of institutional quality and the definition of flexibility will necessarily be country-specific. Nevertheless, reforms of this nature, aiming to clarify contingent policies and increase institutional transparency, would reduce both investor uncertainty in times of crisis and the risk of encountering institutional resistance to needed fiscal adjustment.

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## Table 2: Dependent Variable (fiscal status)[a]

| Country | Failed fiscal effort (0) | Successful fiscal effort (1) | No fiscal need (2) |
|---|---|---|---|
| United States | | | 1987-2000 |
| United Kingdom | 1987, 1992-93 | | 1988-91, 1994-99 |
| Austria | 1987-96 | | 1997-99 |
| Belgium | 1995-97 | 1987-94 | 1998 |
| Denmark | | | 1987-2000 |
| France | 1994-97 | | 1987-93 |
| Germany | | | 1994-98 |
| Italy | 1994-98 | 1987-93 | |
| Netherlands | 1987-90 | | 1991-97 |
| Norway | | | 1987-99 |
| Sweden | 1987-1990 | 1991-96 | 1997-99 |
| Switzerland | | | 1991-00 |
| Canada | 1987-92 | 1993-96 | 1997-00 |
| Finland | 1991-98 | | 1987-90 |
| Greece | 1987-98 | | 1990-91, 1995-98 |
| Iceland | 1987-89, 1992-94 | | 1990-91, 1995-98 |
| Ireland | | 1987-92 | 1993-97 |
| Portugal | 1987-97 | | 1998 |
| Spain | 1987-97 | | |
| Australia | | | 1987-98 |
| New Zealand | | 1987-89 | 1990-99 |
| Malta | 1992-98 | | 1989-91 |
| Luxemburg | | | 1988-99 |
| Israel | 1987-90 | 1991-96 | 1997-99 |
| Turkey | 1991-01 | | 1987-90 |
| Argentina | 1987-89 | | 1990-00 |
| Chile | | | 1987-00 |
| Colombia | | | 1987-99 |
| Costa Rica | 1987-92, 1994-98 | | 1993, 1999-00 |
| Mexico | 1987-92 | | 1993-00 |
| Panama | 1987-88 | | 1989-00 |
| Nicaragua | 1995-99 | 1988-94 | 2000 |
| Paraguay | | | 1987-00 |
| Peru | 1987-93 | | 1994-00 |
| Venezuela | 1998-99 | | 1987-97, 2000 |
| Bahrain | | | 1987-00 |
| Cyprus | 1988-98 | | |
| Iran | | 1987-94 | 1995-00 |
| Jordan | 1992-93 | 1987-91 | 1994-00 |
| Oman | 1991-00 | | |
| Egypt | | 1987-93 | 1994-97 |
| Sri Lanka | 1991-00 | 1987-90 | |
| India | 1987-00 | | |
| Indonesia | | | 1987-97 |
| South Korea | | | 1988-97 |
| Malaysia | 1992 | 1987-91 | 1993-97 |
| Pakistan | 1989-94 | 1995-2000 | |
| Philippines | 1997-00 | 1987-89 | 1990-96 |
| Thailand | | | 1987-2000 |
| New Guinea Papua | | | 1987-99 |
| Bulgaria | 1997-98 | 1991-96 | 1999-00 |
| Hungary | 1989-00 | | 1987-88 |
| Sierra Leone | 1988-99 | | |
| Morocco | 1990-95 | 1987-89 | 1997-99 |
| Tunisia | 1987-99 | | |
| South Africa | 1987-98 | | 1999-00 |
| Botswana | | | 1987-96 |
| Ethiopia | 1988-90, 1998-99 | 1991-97 | |
| Kenya | 1992-96 | 1987-91 | 1997-98 |
| Zimbabwe | 1988, 1996-97 | 1987, 1989-95 | |
| Madagascar | 1991-97 | | 1998-00 |
| **Total: 727 data points** | **273** | **114** | **340** |
| **Advanced: 276 data points** | **97** | **40** | **139** |
| **Developing: 451 data points** | **176** | **74** | **201** |

Note: This is the exact dataset that is used in the final specifications (column 13 of Table 6 and column 12 of Table 7). It is much reduced from its potential size due to limitations of explanatory variable data.

[a] In this particular case, the adjustment required to qualify as a fiscal effort is 2.5% of GDP. All three types of triggers of fiscal need (i.e., cumulative deficit of 20% of GDP, high debt levels, and financial crises) are activated. The deficit threshold is set at 2%, which explains why some well-known crises of the 1990s (Korea, Thailand, Indonesia, Mexico, etc.) do not show up as instances of fiscal need.

## Table 3: Basic Political Economy Statistics for Developing Countries

| Political economy variable | Fiscal status | | |
|---|---|---|---|
| | 0 | 1 | 2 |
| Rule of law | 6.1 (1.7)[1] | 4.9 (1.5) | 6.5 (1.6) |
| Democratic accountability | 3.5 (1.2) | 3.2 (0.9) | 3.4 (1.2) |
| Plurality | 0.54 (0.5) | 0.75 (0.4) | 0.58 (0.5) |
| Government stability | 6.3 (1.9) | 5.7 (1.7) | 6.7 (1.7) |
| Majority government | 0.68 (0.20) | 0.81 (0.20) | 0.63 (0.18) |
| Executive elections | 0.11 (0.32) | 0.12 (0.32) | 0.12 (0.33) |
| Subsidies and transfers | 25.6 (15.2) | 19.2 (11.3) | 26.9 (16.2) |
| Inequality | 38.5 (17.5) | 44.3 (10.7) | 42.9 (14.4) |
| Population over 65 | 5.2 (3.3) | 4.2 (3.1) | 4.5 (2.3) |
| Ethnolinguistic fractionalization | 0.47 (0.30) | 0.51 (0.25) | 0.52 (0.25) |

Notes: As in Table 2, the adjustment required to qualify as a fiscal effort is 2.5% of GDP. All three types of triggers of fiscal need (cumulative deficit of 20% of GDP, debt thresholds, and financial crises) are activated.
1. Mean (standard error)

## Table 4: Basic Political Economy Statistics for Advanced Countries

| Political economy variable | Fiscal status | | |
|---|---|---|---|
| | 0 | 1 | 2 |
| Rule of law | 8.6 (1.5)[1] | 8.8 (1.7) | 9.4 (1.1) |
| Democratic accountability | 5.2 (0.9) | 5.4 (0.8) | 5.8 (0.4) |
| Plurality | 0.41 (0.50) | 0.20 (0.39) | 0.52 (0.50) |
| Government stability | 7.3 (1.5) | 7.4 (1.6) | 7.5 (1.5) |
| Majority government | 0.58 (0.11) | 0.55 (0.06) | 0.54 (0.11) |
| Executive elections | 0.02 (0.14) | 0.03 (0.16) | 0.07 (0.26) |
| Subsidies and transfers | 49.5 (16.2) | 54.8 (11.4) | 57.0 (12.2) |
| Inequality | 28.5 (12.2) | 31.2 (5.1) | 32.3 (9.4) |
| Population over 65 | 13.9 (2.2) | 13.4 (2.8) | 13.6 (1.9) |
| Ethnolinguistic fractionalization | 0.22 (0.21) | 0.34 (0.23) | 0.32 (0.21) |

Notes: As in Table 2, the adjustment required to qualify as a fiscal effort is 2.5% of GDP. All three types of triggers of fiscal need (cumulative deficit of 20% of GDP, debt thresholds, and financial crises) are activated.
1. Mean (standard error)

## Table 5: Data Description

| |
|---|
| ***POLITICAL FACTORS*** |
| *Government stability* – (score of 1-12) This is an ICRG (PRS Group 2002) assessment of both the government's ability to carry out its declared program(s) and its ability to stay in office. The risk rating assigned is the sum of three subcomponents: government unity, legislative strength, and popular support. A score of 4 points means very low risk and a score of 0 points means very high risk. |
| *Majority government* – this measures the percentage of seats in the legislative body controlled by the governing coalition. The series was taken from the World Bank (2005). |
| *Executive elections* – this binary variable (1/0) indicates whether an executive election is taking place in a given year. The series was taken from the World Bank (2005). |
| *Plurality* – this binary variable (1/0) indicates whether legislators are elected using a winner-take-all / first-past-the-post rule. The series was taken from the World Bank (2005). |
| ***SOCIOECONOMIC FACTORS*** |
| *Gini coefficient* – standard measure of income inequality. The annual series is a collection of local surveys that cover national income. Constructed from the United Nations University (2005). |
| *Subsidies and transfers* (% of government expenditures) – This series was collected from the World Bank (2002). |
| *Population over 65* (% population) – This series was collected from the World Bank (2002). |
| *Ethnolinguistic fractionalization* (in 1985) – A Herfindahl index capturing the probability that two individuals randomly picked from the population will belong to different groups. It reaches a theoretical maximum of 1 when every individual belongs to a different group. The index is taken from Roeder. |
| ***INSTITUTIONAL FACTORS*** |
| *Democratic accountability* – (score of 1-12) This is an ICRG (PRS Group 2002) measure of how responsive a government is to its people. High values are attributed to strong democracies, and very low scores to autocracies. This measure factors in a variety of institutional factors, such as the quality of elections, freedom of political debate, the system of checks and balances, and the protection of personal liberties. |
| *Rule of law* – (score 1-12) This variable is constructed taking the weighted average of the law and order and the investment profile indexes from the ICRG (PRS Group 2002). This composite index is designed to represent the application of the law in support of economic activity and the proper functioning of markets. A higher score would indicate, for instance, a better respect for property rights and contracts.<br>*a. Law and order* – Law and order are assessed separately, with each subcomponent comprising zero to three points. The law subcomponent is an assessment of the strength and impartiality of the legal system, while the order subcomponent is an assessment of popular observance of the law. Thus, a country can enjoy a high rating (3) in terms of its judicial system, but a low rating (1) if it suffers from a very high crime rate, or if the law is routinely ignored without effective sanction (for example, widespread illegal strikes).<br>*b. Investment profile* – (score 1-12) This measure of investor protection is an assessment of factors affecting diverse risks to foreign investment: contract viability/expropriation, profit repatriation, and payment delays. The treatment of foreign investors is viewed as an indicator of the overall integrity of the legal system. |
| ***CONTROL VARIABLES*** |
| *Trade/GDP* – Exports + imports /GDP. These data are taken from Felushko and Santor (2005). |
| *Exchange rate regime* – this index attributes values to exchange rate regimes, ordering them according to their degree of flexibility. The index ranges from 0 for free-floating regimes to 10 for fully dollarized regimes. It was calculated using the exchange rate classification in Reinhart and Rogoff (2002). |
| *Trend revenues* – the cyclically adjusted (filtered) value of revenues/GDP. This series was constructed using raw revenue data from the World Bank (2002). |
| *Real GDP growth and world growth* – These data are taken from Felushko and Santor (2005) and the Bank of Canada. |
| *CPI inflation* – inflation is often a good indicator of a country's overall macroeconomic stability, which will have some bearing on fiscal policy. This series was collected from the World Bank (2002). |
| *IMF program* – This binary variable indicates whether a country has an ongoing IMF program. IMF programs may have some beneficial impact on attempts to make fiscal efforts. These data are calculated from data used in Felushko and Santor (2005). |
| *Least-Developed Countries* dummy – These data are calculated from data used in Felushko and Santor (2005). |

## Table 6: Political Economy Determinants of Fiscal Status for Developing Countries

**TYPE 1 [ *Pr*(Y=1) / *Pr*(Y=0) ]** The dependent variable is *fiscal status* = (0, 1, or 2).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rule of law** | -0.25 | **-0.15** | | | | | | | | | | **-0.18** | **-0.18** |
| | *(-3.40)*** | *(-2.84)**** | | | | | | | | | | *(-2.32)*** | *(-3.04)**** |
| **Democratic accountability** | 0.08 | | **-0.06** | | | | | | | | | 0.03 | |
| | *(0.86)* | | *(-1.45)* | | | | | | | | | *(0.38)* | |
| **Plurality** | 0.03 | | | **0.14** | | | | | | | | 0.06 | |
| | *(0.20)* | | | *(1.24)* | | | | | | | | *(0.33)* | |
| **Government stability** | 0.00 | | | | **-0.03** | | | | | | | 0.01 | |
| | *(0.11)* | | | | *(-1.33)* | | | | | | | *(0.09)* | |
| **Elections** | 0.06 | | | | | 0.01 | | | | | | | |
| | *(0.38)* | | | | | *(-0.13)* | | | | | | | |
| **Margin of majority** | 1.32 | | | | | | **0.87** | | | | | **0.84** | **0.95** |
| | *(2.49)*** | | | | | | *(3.05)**** | | | | | *(1.85)* | *(2.21)*** |
| **Inequality** | 0.00 | | | | | | | 0.00 | | | | **-0.01** | -0.00 |
| | *(0.44)* | | | | | | | *(0.36)* | | | | *(-1.30)* | *(-0.43)* |
| **Subsidies and transfers** | -0.04 | | | | | | | | **-0.01** | | | **-0.02** | **-0.02** |
| | *(-2.29)*** | | | | | | | | *(-2.94)**** | | | *(-2.34)*** | *(-2.27)*** |
| **Ethnolinguistic fractionalization** | -0.19 | | | | | | | | | 0.02 | | | |
| | *(-0.42)* | | | | | | | | | *(0.07)* | | | |
| **Population over 65** | 0.08 | | | | | | | | | | -0.03 | | |
| | *(1.88)** | | | | | | | | | | *(-0.93)* | | |
| **TYPE 2 [ *Pr*(Y=2) / *Pr*(Y=0) ]** | | | | | | | | | | | | | |
| **Rule of law** | 0.09 | **0.08** | | | | | | | | | | **0.09** | **0.08** |
| | *(2.34)*** | *(2.09)*** | | | | | | | | | | *(1.93)** | *(2.25)*** |
| **Democratic accountability** | -0.10 | | 0.01 | | | | | | | | | -0.06 | |
| | *(-1.72)* | | *(0.17)* | | | | | | | | | *(-0.98)* | |
| **Plurality** | -0.01 | | | -0.00 | | | | | | | | 0.00 | |
| | *(-0.07)* | | | *(0.02)* | | | | | | | | *(0.02)* | |
| **Government stability** | 0.00 | | | | **0.04** | | | | | | | 0.01 | |
| | *(0.06)* | | | | *(1.53)* | | | | | | | *(0.26)* | |
| **Elections** | 0.02 | | | | | 0.04 | | | | | | | |
| | *(0.28)* | | | | | *(0.52)* | | | | | | | |
| **Margin of majority** | -0.32 | | | | | | **-0.41** | | | | | -0.24 | -0.19 |
| | *(-1.06)* | | | | | | *(-1.50)* | | | | | *(-0.77)* | *(-0.60)* |
| **Inequality** | 0.01 | | | | | | | **0.01** | | | | **0.01** | **0.02** |
| | *(1.08)* | | | | | | | *(1.73)** | | | | *(2.67)**** | *(2.98)**** |
| **Subsidies and transfers** | 0.01 | | | | | | | | **0.01** | | | 0.00 | 0.00 |
| | *(1.18)* | | | | | | | | *(1.65)** | | | *(0.76)* | *(0.75)* |
| **Ethnolinguistic fractionalization** | 0.23 | | | | | | | | | 0.19 | | | |
| | *(0.68)* | | | | | | | | | *(0.63)* | | | |
| **Population over 65** | -0.04 | | | | | | | | | | -0.01 | | |
| | *(-1.26)* | | | | | | | | | | *(-0.36)* | | |
| **Observations** | 418 | 504 | 504 | 431 | 504 | 487 | 451 | 504 | 504 | 489 | 504 | 429 | 451 |
| **Pseudo-$R^2$** | 0.29 | 0.14 | 0.09 | 0.09 | 0.09 | 0.08 | 0.12 | 0.10 | 0.12 | 0.09 | 0.09 | 0.25 | 0.25 |

Notes: Coefficients are in terms of marginal effects *(dY/dX)* or a discrete change for a dummy variable. The *Z*-statistics are shown in parentheses (***1%, **5%, *10%). All regressions include a constant and the control variables noted in section 3 (Tables 5 and 10). Standard errors are robust, using country clusters. In columns 2 to 13, **bold** results indicate significance at the 20% level.

The threshold for a fiscal effort is a monotonic increase in the cyclically adjusted primary balance of at least 2.5% of GDP over a period of six years. All three types of need triggers are activated: a five-year cumulative deficit of 20% of GDP, high debt levels (50% of GDP), and financial crises.

## Table 7: Political Economy Determinants of Fiscal Status for Advanced Countries

**TYPE 1 [ *Pr*(*Y*=1) / *Pr*(*Y*=0) ]** The dependent variable is *fiscal status* = (0, 1, or 2).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rule of law** | 0.04 | -0.01 | | | | | | | | | 0.01 | |
| | *(0.42)* | *(-0.25)* | | | | | | | | | *(0.36)* | |
| **Democratic accountability** | -0.24 | | -0.06 | | | | | | | | -0.08 | -0.06 |
| | *(-1.49)* | | *(-0.82)* | | | | | | | | *(-0.84)* | *(-0.81)* |
| **Government stability** | -0.03 | | | -0.02 | | | | | | | | |
| | *(-0.38)* | | | *(-0.52)* | | | | | | | | |
| **Elections** | -0.08 | | | | -0.05 | | | | | | -0.06 | -0.05 |
| | *(-0.66)* | | | | *(-0.60)* | | | | | | *(-0.65)* | *(-0.51)* |
| **Margin of majority** | -0.79 | | | | | -0.22 | | | | | | |
| | *(-1.33)* | | | | | *(-0.46)* | | | | | | |
| **Inequality** | 0.01 | | | | | | 0.01 | | | | | |
| | *(1.19)* | | | | | | *(1.03)* | | | | | |
| **Subsidies and transfers** | 0.00 | | | | | | | 0.00 | | | | |
| | *(0.44)* | | | | | | | *(0.83)* | | | | |
| **Ethnolinguistic fractionalization** | 0.63 | | | | | | | | 0.36 | | | |
| | *(1.58)* | | | | | | | | *(1.22)* | | | |
| **Population over 65** | -0.00 | | | | | | | | | 0.00 | | |
| | *(-0.02)* | | | | | | | | | *(0.09)* | | |
| **TYPE 2 [ *Pr*(*Y*=2) / *Pr*(*Y*=0) ]** | | | | | | | | | | | | |
| **Rule of law** | 0.01 | **0.08** | | | | | | | | | [illegible] | |
| | *(0.13)* | ***(1.59)*** | | | | | | | | | *(-0.41)* | |
| **Democratic accountability** | 0.32 | | **0.29** | | | | | | | | **0.32** | **0.30** |
| | *(3.35)**** | | ***(2.97)**** | | | | | | | | ***(3.37)**** | ***(2.99)**** |
| **Government stability** | -0.01 | | | 0.03 | | | | | | | | |
| | *(-0.16)* | | | *(0.83)* | | | | | | | | |
| **Elections** | 0.14 | | | | **0.21** | | | | | | **0.19** | **0.18** |
| | *(1.75)** | | | | ***(2.08)**** | | | | | | ***(1.87)**** | ***(1.87)**** |
| **Margin of majority** | -0.42 | | | | | -0.70 | | | | | | |
| | *(-0.79)* | | | | | *(-1.07)* | | | | | | |
| **Inequality** | 0.00 | | | | | | 0.01 | | | | | |
| | *(0.48)* | | | | | | *(0.71)* | | | | | |
| **Subsidies and transfers** | -0.00 | | | | | | | 0.00 | | | | |
| | *(-0.68)* | | | | | | | *(0.49)* | | | | |
| **Ethnolinguistic fractionalization** | -0.35 | | | | | | | | -0.05 | | | |
| | *(-1.14)* | | | | | | | | *(-0.13)* | | | |
| **Population over 65** | -0.02 | | | | | | | | | -0.03 | | |
| | *(-0.56)* | | | | | | | | | *(-0.76)* | | |
| **Observations** | 273 | 280 | 280 | 280 | 276 | 276 | 280 | 277 | 280 | 280 | 276 | 276 |
| **Pseudo-$R^2$** | 0.27 | 0.15 | 0.20 | 0.14 | 0.14 | 0.15 | 0.17 | 0.15 | 0.15 | 0.14 | 0.20 | 0.20 |

Notes: Coefficients are in terms of marginal effects *dF/dX* or a discrete change for a dummy variable. The *Z*-statistics are shown in parentheses (***1%, **5%, *10%). All regressions include a constant and the control variables shown in Table 10. Standard errors are robust, using country clusters. In columns 2 to 12, **bold** results indicate significance at the 20% level.

The threshold for a fiscal effort is a monotonic increase in the cyclically adjusted primary balance of at least 2.5% of GDP over a period of six years. All three types of need triggers are activated: a five-year cumulative deficit of 20% of GDP, high debt levels (50% of GDP), and financial crises. The variable plurality was removed from the regression because it acted as a near constant in type 1 instances.

## Table 8: Robustness Tests for Developing-Country Results

| TYPE 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Rule of law | -0.18 | -0.23 | -0.17 | -0.23 | -0.17 | -0.25 | -0.21 | -0.30 | -0.16 | -0.25 |
| | *(-3.04)**** | *(-2.35)*** | *(-2.78)**** | *(-2.27)** | *(-2.67)**** | *(-2.20)**** | *(-3.62)**** | *(-2.50)*** | *(-3.50)**** | *(-2.84)**** |
| Margin of majority | 0.95 | 0.43 | 0.86 | 0.39 | 0.91 | 0.50 | 1.45 | 1.03 | 0.87 | 0.33 |
| | *(2.21)*** | *(1.14)* | *(2.07)*** | *(1.13)* | *(2.10)*** | *(1.44)* | *(3.18)**** | *(2.11)*** | *(2.24)*** | *(0.90)* |
| Inequality | 0.00 | -0.00 | -0.00 | -0.01 | -0.00 | -0.01 | -0.00 | -0.01 | -0.00 | -0.00 |
| | *(-0.43)* | *(-0.60)* | *(-0.82)* | *(-0.97)* | *(-0.54)* | *(-0.82)* | *(-0.04)* | *(-0.58)* | *(-0.03)* | *(-0.42)* |
| Subsidies and transfers | -0.02 | -0.02 | -0.01 | -0.02 | -0.02 | -0.02 | -0.03 | -0.04 | -0.02 | -0.02 |
| | *(-2.27)*** | *(-1.93)** | *(-2.12)*** | *(-1.92)** | *(-2.43)*** | *(-2.72)**** | *(-2.99)**** | *(-3.66)*** | *(-2.32)*** | *(-2.11)*** |
| **TYPE 2** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| Rule of law | 0.08 | 0.09 | 0.08 | 0.07 | 0.07 | 0.07 | 0.04 | 0.05 | 0.08 | 0.09 |
| | *(2.25)*** | *(2.51)*** | *(2.38)*** | *(2.38)*** | *(2.02)*** | *(2.03)*** | *(2.25)*** | *(2.73)*** | *(1.92)** | *(2.08)*** |
| Margin of majority | -0.19 | -0.28 | -0.26 | -0.32 | -0.20 | -0.30 | 0.10 | 0.05 | -0.27 | -0.22 |
| | *(-0.60)* | *(-0.87)* | *(-1.13)* | *(-1.49)* | *(-0.62)* | *(-0.96)* | *(0.59)* | *(0.30)* | *(-0.91)* | *(-0.68)* |
| Inequality | 0.02 | 0.02 | 0.01 | 0.01 | 0.02 | 0.02 | -0.00 | 0.00 | 0.01 | 0.01 |
| | *(2.98)**** | *(2.95)**** | *(2.67)**** | *(2.65)**** | *(2.99)**** | *(2.97)**** | *(-0.46)* | *(-0.39)* | *(2.02)*** | *(1.87)** |
| Subsidies and transfers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | *(0.75)* | *(0.82)* | *(0.73)* | *(0.77)* | *(0.60)* | *(0.63)* | *(0.76)* | *(0.76)* | *(1.07)* | *(0.98)* |
| Pseudo-$R^2$ | 0.25 | 0.26 | 0.23 | 0.24 | 0.26 | 0.28 | 0.26 | 0.24 | 0.25 | 0.26 |
| Observations | 451 | 451 | 451 | 451 | 451 | 451 | 451 | 451 | 451 | 451 |

Notes: The dependent variable is *fiscal status* = (0, 1, 2). Coefficients are in terms of marginal effects *(dY/dX)* or a discrete change for a dummy variable. The Z-statistics are shown in parentheses (***1%, **5%, *10%). All regressions include a constant and the control variables noted in section 3 (Tables 5 and 10). Standard errors are robust, using country clusters.

The following notes refer to their respective column numbers:
1. Fiscal effort: A) monotonic increase in the cyclically adjusted primary balance of at least 2.5% of GDP over six years. Fiscal need: B) cumulative five-year deficit of at least 20% of GDP, C) debt level: 50% of GDP, D) crisis: yes (debt, currency, or banking), E) deficit threshold: 2% of GDP
2. Fiscal effort: A) 5%. Fiscal need: B) 20%, C) 50%, D) yes E) 2%
3. Fiscal effort: A) 2.5% Fiscal need: B) 20% C) none D) none E) 2%
4. Fiscal effort: A) 5% Fiscal need: B) 20% C) none D) none E) 2%
5. Fiscal effort: A) 2.5 Fiscal need: B) 15% C) none D) none E) 2%
6. Fiscal effort: A) 5% Fiscal need: B) 15% C) none D) none E) 2%
7. Fiscal effort: A) 2.5% Fiscal need: B) none C) none D) yes E) 2%
8. Fiscal effort: A) 5% Fiscal need: B) none C) none D) yes E) 2%
9. Fiscal effort: A) 2.5% Fiscal need: B) 20% C) 50% D) yes E) none
10. Fiscal effort: A) 5% Fiscal need: B) 20% C) 50% D) yes E) none

## Table 9: Robustness Tests for Advanced-Country Results

| TYPE 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Democratic accountability | -0.06 | 0.01 | -0.08 | -0.01 | -0.06 | -0.00 | -0.02 | 0.05 | -0.03 | -0.00 |
| | *(-0.81)* | *(0.05)* | *(-0.97)* | *(-0.10)* | *(-0.86)* | *(-0.02)* | *(0.23)* | *(0.90)* | *(-0.32)* | *(-0.01)* |
| Election year | -0.05 | -0.33 | -0.06 | -0.33 | -0.05 | -0.33 | -0.15 | -0.44 | -0.12 | -0.30 |
| | *(-0.51)* | *(-2.36)*** | *(-0.70)* | *(-2.38)*** | *(-0.55)* | *(-2.44)*** | *(-2.33)*** | *(-3.64)**** | *(-1.38)* | *(-2.11)*** |
| **TYPE 2** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| Democratic accountability | 0.30 | 0.29 | 0.30 | 0.29 | 0.36 | 0.36 | 0.08 | 0.07 | 0.23 | 0.27 |
| | *(2.99)**** | *(3.08)**** | *(2.81)**** | *(2.95)**** | *(3.21)**** | *(3.41)**** | *(2.91)**** | *(2.85)**** | *(1.88)** | *(2.31)*** |
| Election year | 0.18 | 0.16 | 0.16 | 0.13 | 0.12 | 0.10 | -0.09 | -0.11 | 0.23 | 0.16 |
| | *(1.87)** | *(1.95)** | *(1.75)** | *(1.75)** | *(1.02)* | *(0.85)* | *(-0.85)* | *(-1.06)* | *(1.86)** | *(1.80)** |
| Observations | 276 | 276 | 276 | 276 | 276 | 276 | 276 | 276 | 276 | 276 |
| Pseudo-$R^2$ | 0.20 | 0.32 | 0.20 | 0.33 | 0.15 | 0.28 | 0.19 | 0.28 | 0.17 | 0.30 |

Notes: The dependent variable is *fiscal status* = (0, 1, 2). Coefficients are in terms of marginal effects *(dY/dX)* or a discrete change for a dummy variable. The Z-statistics are shown in parentheses (***1%, **5%, *10%). All regressions include a constant and the control variables noted in section 3 (Tables 5 and 10). Standard errors are robust, using country clusters.

The following notes refer to their respective column numbers:

1. Fiscal effort: A) monotonic increase in the cyclically adjusted primary balance of at least 2.5% of GDP over six years. Fiscal need: B) cumulative five-year deficit of at least 20% of GDP, C) debt level: 50% of GDP, D) crisis: yes (debt, currency, or banking), E) deficit threshold: 2% of GDP
2. Fiscal effort: A) 5%, Fiscal need: B) 20%, C) 50%, D) yes E) 2%
3. Fiscal effort: A) 2.5% Fiscal need: B) 20% C) none D) none E) 2%
4. Fiscal effort: A) 5% Fiscal need: B) 20% C) none D) none E) 2%
5. Fiscal effort: A) 2.5 Fiscal need: B) 15% C) none D) none E) 2%
6. Fiscal effort: A) 5% Fiscal need: B) 15% C) none D) none E) 2%
7. Fiscal effort: A) 2.5% Fiscal need: B) none C) none D) yes E) 2%
8. Fiscal effort: A) 5% Fiscal need: B) none C) none D) yes E) 2%
9. Fiscal effort: A) 2.5% Fiscal need: B) 20% C) 50% D) yes E) none
10. Fiscal effort: A) 5% Fiscal need: B) 20% C) 50% D) yes E) none

## Table 10: Control Variables

| | Advanced countries | | Developing countries | |
|---|---|---|---|---|
| **TYPE 1** | **1** | **2** | **3** | **4** |
| **Openness** | 0.16 | 0.10 | -0.13 | -0.02 |
| | *(0.86)* | *(0.53)* | *(-0.48)* | *(-0.04)* |
| **Exchange rate regime** | -0.02 | -0.02 | -0.01 | -0.08 |
| | *(-0.70)* | *(-0.63)* | *(-0.60)* | *(-2.41)*** |
| **Real GDP growth** | -0.01 | -0.01 | 0.00 | -0.00 |
| | *(-0.38)* | *(-0.28)* | *(0.07)* | *(-0.17)* |
| **World real growth** | -0.03 | -0.03 | -0.01 | 0.06 |
| | *(-0.80)* | *(-0.87)* | *(-0.29)* | *(1.53)* |
| **Inflation** | 1.93 | 1.28 | 0.01 | 0.00 |
| | *(1.43)* | *(1.06)* | *(1.78)** | *(0.62)* |
| **Trend revenues** | 0.00 | 0.00 | 0.01 | 0.04*** |
| | *(0.06)* | *(0.03)* | *(1.24)* | *(3.21)* |
| **Least-developed countries** | | | 0.21 | 0.09 |
| | | | *(1.74)** | *(0.56)* |
| **IMF program** | | | 0.12 | 0.09 |
| | | | *(1.63)** | *(0.56)* |
| **TYPE 2** | **1** | **2** | **3** | **4** |
| **Openness** | -0.17 | -0.05 | 0.16 | 0.15 |
| | *(0.91)* | *(-0.34)* | *(0.85)* | *(0.65)* |
| **Exchange rate regime** | -0.06 | -0.05 | 0.02 | 0.03 |
| | *(-1.58)* | *(-1.53)* | *(0.64)* | *(1.13)* |
| **Real GDP growth** | 0.03 | 0.04 | 0.02 | 0.02 |
| | *(1.22)* | *(1.66)** | *(2.71)** | *(2.77)**** |
| **World real growth** | -0.04 | -0.07 | 0.04 | -0.00 |
| | *(-1.05)* | *(-1.68)** | *(1.60)* | *(-0.02)* |
| **Inflation** | -6.07 | -3.66 | -0.01 | -0.01 |
| | *(-2.67)**** | *(-2.21)*** | *(-1.08)* | *(-0.78)* |
| **Trend revenues** | 0.00 | 0.00 | -0.01 | -0.01 |
| | *(0.09)* | *(0.17)* | *(-1.23)* | *(-1.37)* |
| **Least-developed countries** | | | -0.21 | -0.24 |
| | | | *(-1.20)* | *(-1.04)* |
| **IMF program** | | | -0.02 | 0.03 |
| | | | *(-0.32)* | *(0.39)* |
| **Observations** | 27[illegible] | 276 | 451 | 451 |
| **Pseudo-$R^2$** | 0 | 0.20 | 0.07 | 0.25 |

Notes: The dependent variable is *fiscal status* = (0, 1, 2). Coefficients are in terms of marginal effects *(dY/dX)* or a discrete change for a dummy variable. The Z-statistics are shown in parentheses (***1%, **5%, *10%). Standard errors are robust, using country clusters. Columns 2 and 4 are part of the last columns of Tables 6 and 7.

The following notes refer to their respective column numbers:
1. Control variables alone, same need and effort parameters as Table 7.
2. Control variables of column 12 from Table 7.
3. Control variables alone, same need and effort parameters as Table 6.
4. Control variables of column 13 from Table 6.

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